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```

      10                      30
atgacgactgaaccgcttatttttcaagcctgttttcaaagaaagaatt
M T T E P L F F K P V F K E R I

      50                      70                      90
tggggcggggaccgcttttagctgattttggctataaccattccgtcacaa
W G G T A L A D F G Y T I P S Q

      110                      130
cgaacagggggagtgcctgggcttttggcgcgcacatcaaaatgggtcaaagc
R T G E C W A F A A H Q N G Q S

      150                      170                      190
gttggttcaaaacggaatgtataaggggttcacgctcagcgaattatgg
V V Q N G M Y K G F T L S E L W

      210                      230
gaacatcacagacatttatttcggacagcttgaaggggaccggtttccct
E H H R H L F G Q L E G D R F P

      250                      270                      2
ctgcttacaaaaatattagatgctgaccaggacttatctgttcagggtg
L L T K I L D A D Q D L S V Q V

      90                      310                      330
catccgaatgatgaatatgccaacatacatgaaaacgggtgagcttgga
H P N D E Y A N I H E N G E L G

      350                      370
aaaacagaatgctggtacattattgattgccaaaaagatgccgagatt
K T E C W Y I I D C Q K D A E I

      390                      410                      430
atztatggccacaatgcaacaacaaaggaagaactaactaccatgata
I Y G H N A T T K E E L T T M I

      450                      470
gagcgtggagaatgggatgagctcttgcgccgtgtaaaggtaaagccg
E R G E W D E L L R R V K V K P

      490                      510                      5
ggggattttttctatgtgccaaagcggtactgttcatgcgattggaaaa
G D F F Y V P S G T V H A I G K

      30                      550                      570
ggaattcttgctttggagacgcagcagaactcagacacaacctacaga
G I L A L E T Q Q N S D T T Y R

```

FIG. 1A

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590 610  
ttatatgattatgaccgaaaagatgcagaaggcaagctgcgcgagctt  
L Y D Y D R K D A E G K L R E L

630 650 670  
catctgaaaaagagcattgaagtgatagagggtcccgctctattccagaa  
H L K K S I E V I E V P S I P E

690 710  
cggcatacagttcaccatgaacaaattgaggatttgcttacaacgaca  
R H T V H H E Q I E D L L T T T

730 750 7  
ttgattgaatgcgcttacttttcggtgggggaaatggaacttatcagga  
L I E C A Y F S V G K W N L S G

70 790 810  
tcagcaagcttaaagcagcaaaaaccattccttcttatcagtggtgatt  
S A S L K Q Q K P F L L I S V I

830 850  
gaaggggagggcccgatgatctctggtgagtatgtctatcctttcaaa  
E G E G R M I S G E Y V Y P F K

870 890 910  
aaaggagatcatatgttgctgccttacgggtcttgagagaatttaaactc  
K G D H M L L P Y G L G E F K L

930  
gaaggatatgcagaatgtatcgtctcccatctg  
E G Y A E C I V S H L

**FIG. 1B**





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papa\_carpa.p VLNDGDVNIPEYVDWRQKGA VTPVKNQSGCSCWAFSAVVTIEGIIKIRTGNLNEYSE  
QE  
↓ 130 140 150 160 170 180

| | | | | : : : : : : | : :

: |  
YJDE PLFFKPVFKERIWGGTALADFGYTIPSTQRTGECWAFAAHQNSVVQ--NGMYKGFTL  
SE ↑ 10 20 30 40 50 60

190 200 210 220 230 240  
papa\_carpa.p LLDCCRYSYGCNGG--YPWSALQLVAQYGIHYRNTYPEGVQRYCRSREKGPYAAKTD  
GV

| : | : | | : | : : : : : : | : | : | :  
YJDE LWEHHRHLFGQLEGDRFPLTKILDADQDLSVQ-VHPND---EYANIHENGELG-KTE  
CW 70 80 90 100 110

250 260 270 280 290 ↓ ↓  
papa\_carpa.p RQVQPYNEGALLY---SIANQPVSVVLEAAGKDFQLYR----GGIFVGPCGNKVDHA  
VA  
: : : : : : : : : : : : | : | : | :

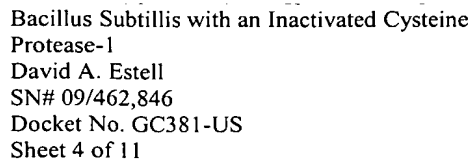
|  
YJDE YIIDCQKDAEIIYGHNATTKELTMIERGEWDELLRRVKVPGDFFVPSGT-----  
VH 120 130 140 150 160 170

300 310 320 330 340  
papa\_carpa.p AVGYGPNYILIKNSWGTGWGENGYIRIKRGTGNSYGVCGLYTSSFYPPVK  
N  
| : |

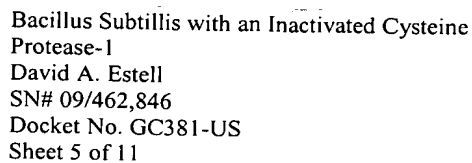
YJDE AIGKGILALETQNSDTTYRLYDRKDAEGKRELHLKKSIEVIEVPSIPERHTVHH  
EQ 180 190 200 210 220 230

FIG.-2

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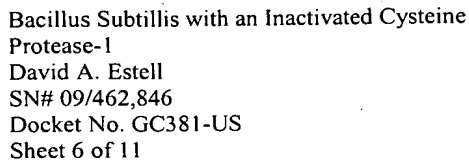


**FIG. 3A**



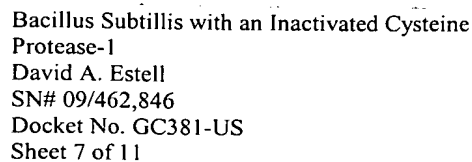
	180	190	200	210	220	230	2
39		↓ ↓					
yjde.pep							
TT							
PMI							
IK							
40							
99							
yjde.pep							
GL							
:							
PMI							
QM							
00							

**FIG. 3B**



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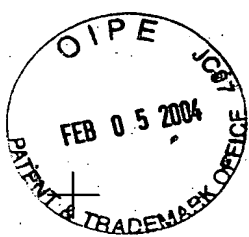
**FIG. 4A**



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**FIG. 4B**

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10 30  
atgacgcatccattatTTTTtagagcctgtctTTTaaagaaagactatgg  
M T H P L F L E P V F K E R L W

50 70 90  
ggaggggacgaagcttcgtgacgctTTTggctacgcaataccctcacaa  
G G T K L R D A F G Y A I P S Q

110 130  
aaaacagggtgagtgcctgggcccgtttctgcacatgcccattggctcgtcg  
K T G E C W A V S A H A H G S S

150 170 190  
tctgtaaaaaatggcccgctggcaggaaagacacttgatcaagtatgg  
S V K N G P L A G K T L D Q V W

210 230  
aaagatcatccagagatatccgggtttccggatggtaagggtgtttccg  
K D H P E I F G F P D G K V F P

250 270 2  
ctgctgggtaaagctgctggacgccaatatggatctctccgtgcaagtc  
L L V K L L D A N M D L S V Q V

90 310 330  
catcctgatgatgattatgcaaaaactgcacgaaaatggcgaccttggt  
H P D D D Y A K L H E N G D L G

350 370  
aaaacggagtgctgggtatatcattgattgcaaagatgacgccgaacta  
K T E C W Y I I D C K D D A E L

390 410 430  
attttgggacatcatgcaagcacaaggaagagttcaaacaacgaata  
I L G H H A S T K E E F K Q R I

450 470  
gaaagcgggtgattggaacgggctgctgaggcgaatcaaaatcaagcca  
E S G D W N G L L R R I K I K P

490 510 5  
ggagatttcttttatgtgccaagcggtacactccatgctttatgtaag  
G D F F Y V P S G T L H A L C K

30 550 570  
ggaacccttgctccttgaaatccagcaaaaactctgataacaacatatcgc  
G T L V L E I Q Q N S D T T Y R

FIG. 5A





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590 610  
gtatacgattatgaccgctgtaatgaccagggccaaaaagaactctt  
V Y D Y D R C N D Q G Q K R T L

630 650 670  
catatagaaaaagccatggaagtcataacgataccgcatatcgataaa  
H I E K A M E V I T I P H I D K

690 710  
gtgcatacacccggaagtaaaagaagttggtaacgctgagatcattggt  
V H T P E V K E V G N A E I I V

730 750 7  
tatgtgcaatcagattatttctcagtgtacaaatggaagattagcggc  
Y V Q S D Y F S V Y K W K I S G

70 790 810  
cgagctgcttttcccttcatatcaaactatttgctggggagtggtctg  
R A A F P S Y Q T Y L L G S V L

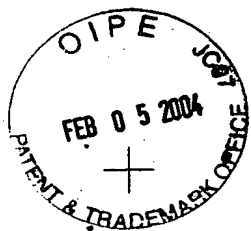
830 850  
agcggatcaggacgaatcataaataatggtattcagtatgaatgcaat  
S G S G R I I N N G I Q Y E C N

870 890 910  
gcaggctcacactttattctgcctgcgcattttggagaatttacaata  
A G S H F I L P A H F G E F T I

930  
gaaggaacatgtgaattcatgatatctcatcct  
E G T C E F M I S H P

**FIG.\_5B**





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10 30  
atgacgcaatcacccgattttttctaacgcctgtgttttaagaaaaaatc  
M T Q S P I F L T P V F K E K I

50 70 90  
tggggcggaaccgctttacgagatagatttggatacagtattccttca  
W G G T A L R D R F G Y S I P S

110 130  
gaatcaacgggggaatgctggggccatttccgctcatccaaaaggaccg  
E S T G E C W A I S A H P K G P

150 170 190  
agcactgttgcaaattggcccgtataaaggaaagacattgatcgagctt  
S T V A N G P Y K G K T L I E L

210 230  
tggggaagagcacccgtgaagtattcggcggcgtagagggggatcggttt  
W E E H R E V F G G V E G D R F

250 270 2  
ccgcttctgacaaagctgctggatgtgaaggaagatacgtcaattaaa  
P L L T K L L D V K E D T S I K

90 310 330  
gttcaccctgatgattactatgccggagaaaaacgaagagggagaactc  
V H P D D Y Y A G E N E E G E L

350 370  
ggcaagacggaatgctgggtacattatcgactgtaaggaaaacgcagaa  
G K T E C W Y I I D C K E N A E

390 410 430  
atcatttacgggcatacggcccgcctcaaaaaccgaacttgtcacaatg  
I I Y G H T A R S K T E L V T M

450 470  
atcaacagcgggtgactgggagggcctgctgcgaagaatcaaaaattaaa  
I N S G D W E G L L R R I K I K

490 510 5  
ccgggtgattttctattatgtgccgagcggaacgctgcacgcattgtgc  
P G D F Y Y V P S G T L H A L C

30 550 570  
aagggggcccttgtttttagagactcagcaaaattcagatgccacatac  
K G A L V L E T Q Q N S D A T Y

FIG. 6A



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590 610  
cgggtgtacgattatgaccgtcttgatagcaacggaagtccgagagag  
R V Y D Y D R L D S N G S P R E

630 650 670  
cttcattttgccaaagcgggtcaatgccgccacgggttccccatgtggac  
L H F A K A V N A A T V P H V D

690 710  
gggtatatagatgaatcgacagaatcaagaaaaggaataaccattaaa  
G Y I D E S T E S R K G I T I K

730 750 7  
acatttgtccaaggggaatatcttttcgggtttataaatgggacatcaat  
T F V Q G E Y F S V Y K W D I N

70 790 810  
ggcgaagctgaaatggctcaggatgaatcctttctgatttgcagcgtg  
G E A E M A Q D E S F L I C S V

830 850  
atagaaggaagcgggtttgctcaagtatgaggacaaaacatgtccgctc  
I E G S G L L K Y E D K T C P L

870 890 910  
aaaaaagggtgatcactttattttgccggctcaaatgcccgattttacg  
K K G D H F I L P A Q M P D F T

930  
ataaaaaggaacttgtacccttatcgtgtctcatatt  
I K G T C T L I V S H I

**FIG.\_6B**

